



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/728,790

12/08/2003

Kia Silverbrook

MTB05US

8937

24011 7590 02/28/2007
SILVERBROOK RESEARCH PTY LTD
393 DARLING STREET
BALMAIN, 2041
AUSTRALIA

EXAMINER

MRUK, GEOFFREY S

ART UNIT

PAPER NUMBER

2853

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

02/28/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/728,790

Applicant(s)

SILVERBROOK, KIA

Examiner

Geoffrey Mruk

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-18 and 20-22 is/are pending in the application.
- 4a) Of the above claim(s) 2-5, 9-11, 13-16 and 20-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 6, 7, 12, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/112,767.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 22 December 2006 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6, 7, 12, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugitani et al. (US 4,611,219) in view of Chiang et al. (US 5,508,236).

With respect to claim 1, Sugitani discloses an ink jet printhead (Fig. 1) comprising:

- a plurality of nozzles (Fig. 1, elements 8-3, 9-3) formed in a nozzle plate (Fig. 1, element 14);
- a bubble forming chamber (Fig. 1, elements 8-1, 9-2) corresponding to each of the nozzles respectively (Column 4, lines 1-6), the bubble forming chambers having a circular cross section (Fig. 1, elements 8-1, 9-2; Column 3, lines 6-8 and

Column 3, lines 35-39) and adapted to hold bubble forming liquid, the bubble forming chamber being partially defined by a sidewall (Fig. 1, elements 5, 11, 12, i.e. thickness of each perforation) extending between the nozzle plate and an underlying substrate (Fig. 1, element 1), the sidewall and the nozzle plate being integrally formed (Column 3, line 21, i.e. single body) from a ceramic material (Column 3, lines 22-25) and,

- at least one heater element (Fig. 1, element 2) disposed in each of the bubble forming chambers respectively, the heater elements configured for thermal contact with the bubble forming liquid; such that,
- heating the heater element to a temperature above the boiling point of the bubble forming liquid forms a gas bubble that causes the ejection of a drop of an ejectable liquid through the nozzle corresponding to that heater element (Column 2, lines 47-51).

The examiner makes of record that the term integrally is defined as “of, pertaining to, or belonging as a part of the whole; constituent or component: integral parts.”

With respect to claim 6, Sugitani discloses the ejectable liquid is the same as the bubble forming liquid (Column 4, lines 1-6).

With respect to claim 7, Sugitani discloses the printhead is a pagewidth printhead (Column 7, lines 56-63).

With respect to claim 12, Sugitani discloses a printer system (Column 1, lines 6-10) which incorporates a printhead (Fig. 1), the printhead comprising:

- a plurality of nozzles (Fig. 1, elements 8-3, 9-3);

Art Unit: 2853

- a bubble forming chamber (Fig. 1, elements 8-1, 9-1) corresponding to each of the nozzles respectively (Column 4, lines 1-6), the bubble forming chambers having a circular cross section (Fig. 1, elements 8-1, 9-2; Column 3, lines 6-8 and Column 3, lines 35-39) and adapted to hold bubble forming liquid, the bubble forming chamber being partially defined by a sidewall (Fig. 1, elements 5, 11, 12, i.e. thickness of each perforation) formed of ceramic material (Column 3, lines 22-25) extending between the nozzle plate and an underlying substrate (Fig. 1, element 1) the sidewall and the nozzle plate being integrally formed (Column 3, line 21, i.e. single body) formed from a ceramic material (Column 3, lines 22-25) and,
- at least one heater element (Fig. 1, element 2) disposed in each of the bubble forming chambers respectively, the heater elements configured for thermal contact with the bubble forming liquid; such that,
- heating the heater element to a temperature above the boiling point of the bubble forming liquid forms a gas bubble that causes the ejection of a drop of an ejectable liquid through the nozzle corresponding to that heater element (Column 2, lines 47-51).

With respect to claim 17, Sugitani discloses the ejectable liquid is the same as the bubble forming liquid (Column 4, lines 1-6).

With respect to claim 18, Sugitani discloses the printhead is a pagewidth printhead (Column 7, lines 56-63).

However, Sugitani fails to disclose the ceramic material is an amorphous ceramic material.

Chiang discloses a ceramic glass composition where the ceramic material is amorphous (Column 1, lines 49-55).

At the time of the invention, it would have been obvious to use the ceramic glass composition disclosed by Chiang in the liquid-jetting head of Sugitani. The motivation for doing so would have been "an inexpensive ceramic exhibiting improved strength, hardness, and chemical and mechanical resistance" (Column 1, lines 38-41).

Response to Arguments

Applicant's arguments filed 14 November 2006 have been fully considered but they are not persuasive. The applicant's argument that "We submit that there no discussion of an integral nozzle plate and sidewall. In fact, the description is clear that the Sugitani printhead is made up of several plates joined to form a laminate structure", is not persuasive.

However, as stated in the non-final rejection, the primary reference of Sugitani discloses a liquid-jetting head where "The base plate 1 and the plates 5, 11, 12, and 14, described above, are superposed one over another, adjusted to hold the perforations and openings in position, and joined into a single body with an adhesive, screws, or the like" (Column 3, lines 18-22). Therefore, Sugitani meets the claimed limitation "the sidewall and the nozzle plate being integrally formed."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey Mruk whose telephone number is 571 272-2810. The examiner can normally be reached on 7am - 330pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GSM
2/16/2007



STEPHEN MEIER
SUPERVISORY PATENT EXAMINER